Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

FPL

April 8, 2004

L-2004-088
EA-03-09(IV)(F)(2)

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Re: St. Lucie Unit 1
Docket No. 50-335
Order (EA-03-009) Relaxation Request 2
Examination Coverage of Reactor Pressure
Vessel Head Penetration Nozzles – Supplement 3

On February 11, 2003, the NRC issued Order EA-03-009 requiring specific inspections of the reactor pressure vessel (RPV) head and associated penetration nozzles at pressurized water reactors. By letter L-2003-283 dated November 21, 2003, and pursuant to the procedure specified in Section IV, paragraph F of the Order, Florida Power & Light Company (FPL) requested relaxation from certain requirements specified in Section IV, paragraph C (1) for St. Lucie Unit 1. On February 20, 2004, the NRC issued First Revised Order EA-03-009. On March 4, 2004 during a conference call between FPL and the NRC, FPL was asked to clarify the need for the staff to continue the review of St. Lucie Unit 1 Relaxation Requests 1 and 2. On March 23, 2004, FPL docketed the clarification by letter L-2004-071.

During conference calls on April 2, 2004 and April 4, 2004, the NRC and FPL discussed the St. Lucie Unit 1 relaxation requests under review by the NRC and the results of the FPL RPV head inspections. On April 6, 2004, FPL letter L-2004-085 provided the revised Relaxation Request 2 and supporting information based on the above conference calls.

On April 8, 2004, the NRC issued a request for additional information. The FPL response is attached.

FPL requests that the NRC complete its review and approval of Relaxation Request 2 as soon as reasonably achievable. St. Lucie Unit 1 is currently scheduled to enter Mode 4 on April 16, 2004.

A101

Please contact George Madden at (772) 467-7155 if there are additional questions about the relaxation.

Very truly yours,

William Jefferson, Jr.
Vice President
St. Lucie Plant

Attachment

WJ/GRM

St. Lucie Unit 1
Relaxation Request Numbers 1 and 2 From
US NRC Order EA-03-009
Response to Request for Additional Information

On April 6, 2004, Florida Power and Light Company (FPL) submitted examination results in support of a request for relaxation[1] from NRC Order EA-03-009[2] for St. Lucie Unit 1. As a result of the April 6, 2004 transmittal and a teleconference with the NRC staff on April 4, 2004, the NRC requested additional information to clarify the St. Lucie Unit 1 reactor vessel head inspection results. FPL hereby supplies the response to the requested information.

NRC Question 1:

The April 6, 2004, submittal withdrew Relaxation Request No. 1 regarding bare metal visual (BMV) inspections. The previous submittals provided detailed information regarding the inability to obtain 360 degree coverage around nozzle #2. Please explain what was done to remove or bypass the obstruction so that BMV Relaxation is no longer necessary.

FPL Response to NRC Question 1:

Through the use of a mock-up to develop tooling and preparation, FPL was able to meet the coverage requirements of the Order Revision. There was no way of knowing how well the new tooling would work until the actual inspection was implemented. The previous relaxation request was based on the fall 2002 outage results. The development efforts resulted in new tooling that was used to lift the obstruction around nozzle #2. Relaxation requests are submitted prior to each outage, based on anticipated inspection issues that may not allow for full compliance with the Order. This provides additional time for NRC review.

NRC Question 2:

Please explain the limitation in obtaining a 12 degree arc (no scan) for penetration #6 when you achieved 360 degree UT coverage greater than 2 inches above the weld for all other 11 degree nozzle angles.

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[1] FPL letter L-2004-085, "St. Lucie Unit 1, Docket No. 50-335, Order (EA-03-009) Relaxation Requests 1 and 2, Examination Coverage of Reactor Pressure Vessel Head Penetration Nozzles– Supplement 2," W. Jefferson Jr. to NRC, April 6, 2004.

[2] US NRC Letter EA-03-009, "Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors," from R. William Borchardt, (NRC) to all Pressurized Water Reactor Licensees, Dated February 20, 2004 (ADAMS Accession # ML040220391).

FPL Response to NRC Question 2:

The insertion depth of a penetration into the RV head is a reference dimension. The locations of the counterbores relative to the distance above the welds for the 11 degree nozzles are between 1.80 inches and 2.15 inches. Having one nozzle out of eight with a shorter distance above the weld would likely be a part of a normal distribution of tolerance in the associated dimensions.

NRC Question 3:

With respect to question #2, please explain why the scan limitation for a specific nozzle angle may be different among penetrations that have the same nozzle angle. For example, penetration #12 had an arc of 47 degrees missed while penetrations 10 and 13 achieved 360 degree coverage. All three penetrations are listed as having a 22.4 degree nozzle angle.

FPL Response to NRC Question 3:

The measurement of the arc of the weld area that has less than 2 inches above the weld is taken off the UT "C" scan. The variations in coverage are partially a function of the angle of the penetration but also reflect the variability of hand fabricated J-groove preps and welds, and tolerance dimensions identified in the response to question 2. These measurements account for both geometry of the nozzle angle and the actual field condition of the weld at the root, J-groove butter, and tolerances.

NRC Question 4:

With respect to the 17 penetrations where ultrasonic testing (UT) coverage was less than 2.0 inches above the weld on the uphill side, were there any instances where that same arc of unexamined area extended to the downhill side of the weld? If so, what were the hoop stress levels in the unexamined areas?

FPL Response to NRC Question 4:

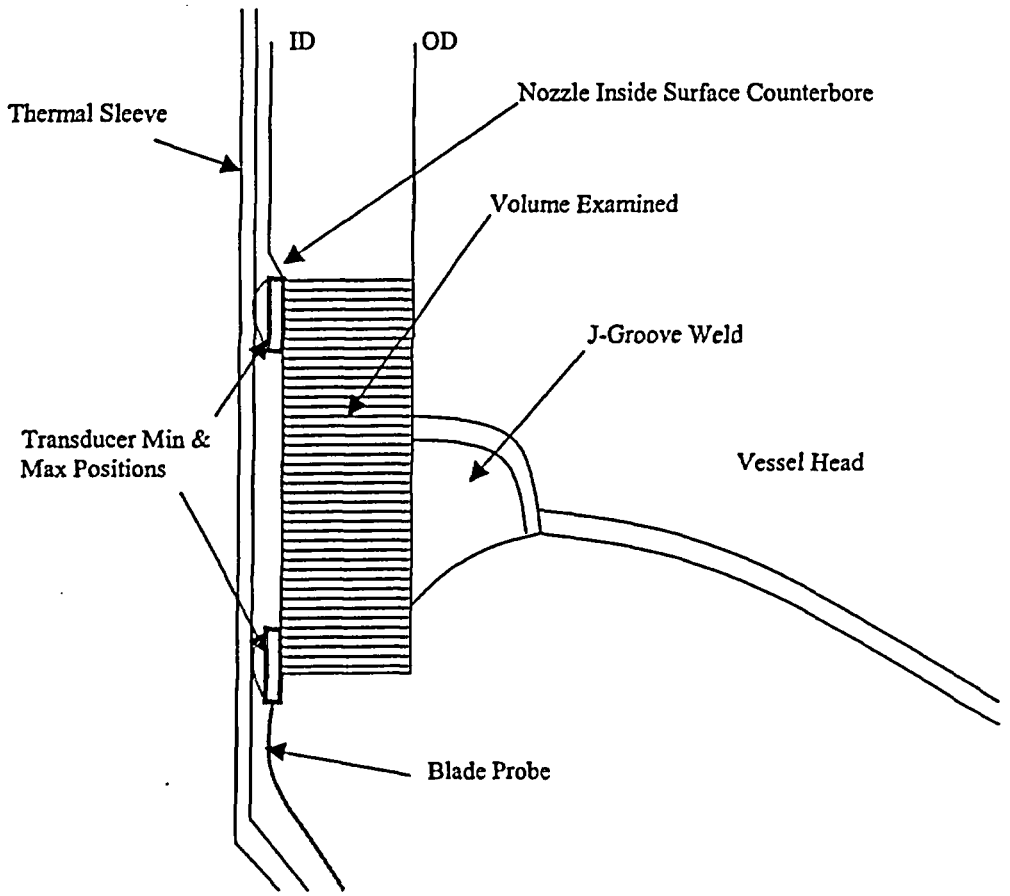
The minimum distance above the weld on the uphill side listed in the table represents a minimum horizontal plane measured from the uphill side of the weld root. This arc is centered around the uphill side of the nozzle. The coverage area beyond the uphill arc is greater than 2 inches above the weld for the 17 penetrations.

NRC Question 5:

Please explain the process used to obtain 100 percent UT coverage down to the bottom of the nozzle and why relaxation is no longer necessary.

FPL Response to NRC Question 5:

The axial blade probe was used to examine all CEDM nozzles with guide sleeves. This probe has both the send and receive transducers lined up on a horizontal plane. The scan height obtained on the ID is therefore the same as that on the OD. The picture below shows the scan area with the axial probe. The detection capabilities of the axial blade probe have been demonstrated in accordance with the Materials Reliability Program (MRP) demonstration program.



NRC Question 6:

In your earlier submittal and during the April 2, 2004, telephone call, you indicated that stress levels were less than 20 ksi at scan distances exceeding 0.75 inch above the weld as part of the technical basis for the relaxation request. Your April 6, 2004, submittal extends this length to 1.11 inches. Please discuss the basis for the difference and why the new number (scan distance) is truly representative and conservative.

FPL Response to NRC Question 6:

In our submittal (L-2003-283 on November 21, 2003) there was no mention of a 20 ksi stress level since this threshold limit was not yet a part of the Order until the revision dated February 20, 2004. In our submittal (L-2004-071 on March 23, 2004), FPL stated that it was using the methodology in MRP-95 as its basis for the 0.75 inch inspection distance above the weld. Specifically FPL stated:

"MRP-95 shows that both axial and hoop stress levels in this region drop off quickly to at least below 70 percent of the penetration yield stress, or below 20 ksi for most all CEDM/CRDM locations modeled, with the exception of the 0°. FPL expects that UT examination of the 0° nozzle will include approximately one inch above the weld."

As a result of the conference call on April 2, 2004 FPL stated that the WCAP-15945P was a plant specific stress analysis that showed that the stresses drop off rapidly, but that the actual distance is not able to be determined from the color stress pictures in the WCAP. Based on that conversation, the NRC asked for the distance above the weld based on the St. Lucie Plant specific analysis. That work was completed and submitted via FPL Letter L-2004-085 dated April 6, 2004.

This work is considered to be representative and conservative since it is plant specific work. In addition, the actual coverage extends beyond the 1.11 inch distance.